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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,765	07/15/2003	Kazuaki Sumita	0171-0991P	6014

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EXAMINER

SELLERS, ROBERT E

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/618,765

Applicant(s)

SUMITA ET AL.

Examiner

Robert Sellers

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-5 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/15/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Art Unit: 1712

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1 and 2, drawn to a composition comprising an epoxy resin, an aromatic amine curing agent and an inorganic filler, classified in class 525, subclass 523.
 - II. Claim 3, drawn to the composition of Group I further comprising a silicone-modified resin, classified in class 525, subclass 476.
 - III. Claims 4 and 5, drawn to a semiconductor device, classified in class 257, subclass 793.

The inventions are distinct from each the other because:

2. Inventions I and (II or III) are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as an adhesive formulation and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants.
3. Inventions II and III are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct

Art Unit: 1712

(MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful in a molding composition and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants.

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Restriction for examination purposes as indicated is proper because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification.

4. During a telephone conversation with Gerald M. Murphy, Jr. on August 26, 2005, a provisional election was made with traverse to prosecute the invention of Group I, claims 1 and 2. Affirmation of this election must be made by applicant in replying to this Office action. Claims 3-5 are withdrawn from further consideration under 37 CFR 1.142(b), as being drawn to non-elected inventions.

5. The molar ratio described on page 4, line 3 is unclear in the absence of a denominator each value of the range, i.e. between 0.7:1 and 0.9:1.

Art Unit: 1712

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent Nos. 9-176294 (Japanese '294) or 10-158366 (Japanese '366).

6. The patents disclose a liquid composition comprising a liquid epoxy resin, an alkylated diaminodiphenyl methane containing minimal ionic impurities such as Na⁺ and Cl⁻ (Japanese '294, translation, page 2, paragraph 6, lines 5-6 and Japanese '266, translation, page 2, paragraph 8, lines 3-5), an inorganic filler and a silane coupling agent wherein the molar ratio of epoxy resin to aromatic amine is as low as 0.9:1 (Japanese '294, page 2, paragraph 6, lines 10-16 and Japanese '366, page 2, paragraph 9).

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent No. 64-65120 (Japanese '120).

7. Japanese '120 sets forth a mixture of a liquid epoxy resin, diaminodiphenyl methane and an inorganic filler without a silane coupling agent wherein the epoxy:amine equivalent ratio is as low as 0.9:1.

Art Unit: 1712

8. Based on the equivalent components and molar ratio of the prior art and claimed compositions, the blends of the aforementioned references inherently exhibit a toughness K_{1c} of at least 3.5.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent No. 60-92318 (Japanese '318) in view of Japanese '294.

9. Japanese '318 reports a formulation containing an epoxy resin and diaminodiphenyl sulfone in an epoxy resin:curing agent ratio of as low as 0.8:1.

10. The claimed liquid epoxy resin and inorganic filler is not recited. Japanese '294 is described hereinabove. It would have been obvious to employ the liquid epoxy resin of Japanese '294 as the epoxy resin of Japanese '318 in order to prevent the appearance of air bubbles and improve the dependability accruing from the lower viscosity (Japanese '294, page 2, paragraph 5, lines 3-4). It would have been obvious to incorporate the inorganic filler of Japanese '294 into the formulation of Japanese '318 in order to reduce the coefficient of linear expansion (page 3, paragraph 9, lines 2-4).

Art Unit: 1712

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Nos. 1-152120 (Japanese '120), 9-176287 (Japanese '287), 10-158365 (Japanese '365) and 10-231351 (Japanese '351) in view of Japanese '294 and '366.

11. The primary references espouse mixtures of liquid epoxy resins, (alkylated) diaminodiphenyl methanes or sulfones, and inorganic fillers (except for Japanese '120 whose abstracts do not recite inorganic fillers). Japanese '120 acknowledges the purity of the diaminodiphenyl methane or sulfone such that less than 0.1% of isomers are present and the lowest possible chlorine content is attained.

12. The claimed molar ratio of from 0.7:1 to 0.9:1 is not recited. Japanese '294 and '366 are described hereinabove. It would have been obvious to utilize the (alkylated) diaminodiphenyl methanes or sulfones of the primary references at molar ration of epoxy resin:aromatic amine of as low as 0.9:1 in order to optimize the degree of hardening.

13. It would have been obvious to include the inorganic fillers of Japanese '287, '365 and '351 in the mixture of Japanese '120 in order to lower the coefficient of linear expansion (Japanese '287, page 2, paragraph 10, lines 4-7; Japanese '365, page 2, paragraph 10, lines 5-7; and Japanese '351, page 3, paragraph 10, lines 8-11).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Sellers whose telephone number is (571) 272-1093. The examiner can normally be reached on Monday to Friday from 9:30 to 6:00. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

rs
9/16/2005



ROBERT E.L. SELLERS
PRIMARY EXAMINER

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